

**TITLE: TRANSLATIONAL LOOP RF TRANSMITTER ARCHITECTURE FOR
GSM RADIO**

ABSTRACT OF THE INVENTION

5 Digital signal processing generates IF modulated digital data which is then converted
to analog using a high sample rate digital-to-analog converter (DAC) without first producing
a baseband signal that is to be upconverted to IF. The digital data has a high sample rate that
is a whole multiple of a specified IF signal. A DAC converts the digital data into a continuous
waveform IF signal that is produced to a feed-forward filter that eliminates spectral copies of
10 the signal. The sample rate is selected so that harmonic signals do not appear in specified
signal bands. Various embodiments include sample rates of 104 and 338 MHz (GSM
application). The 26 MHz IF filtered signal produced by the feed-forward filter is then
produced to a translational loop that produces a corresponding output oscillation (RF
transmit signal).

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